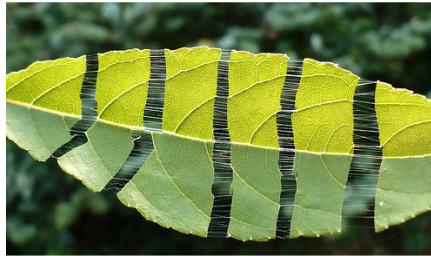




PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland



## Rigler Elementary School Tree Walk

LEARNING LANDSCAPES



## Rigler Elementary School Tree Walk 2021 Learning Landscapes

Site data collected in Summer 2014 and Summer 2020.

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### Cover photos (from top left to bottom right):

- 1) Lacebark pine has unusual bark and thin foliage.
- 2) Sticky, stringy sap in the leaf of a hardy Chinese rubber tree.
- 3) The fall color of Persian ironwood its native range.
- 4) Pendulous fruit of an American hornbeam.
- 5) This red horsechestnut displays its namesake flowers.
- 6) The characteristic wide canopy of the Japanese pagoda tree.
- 7) Douglas-fir cones have distinctive 3-pointed bracts.
- 8) The foliage of a valley oak.

ver. 12/30/2020

### Portland Parks & Recreation

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Commissioner Carmen Rubio  
Director Adena Long

# The Learning Landscapes Program



## Rigler Elementary School

The Rigler Elementary School Learning Landscape was initiated in November 2005 with a planting of 33 trees. The collection now includes more than 80 trees. This tree walk identifies trees planted as part of the Learning Landscape as well as other interesting specimens at the school.

## What is a Learning Landscape?

A Learning Landscape is a collection of trees planted and cared for at a school by students, volunteers, and Portland Parks & Recreation (PP&R) Urban Forestry staff. Learning Landscapes offer an outdoor educational experience for students, as well as environmental and aesthetic benefits to the school and surrounding neighborhood. Learning Landscapes contain diverse tree species. They are designed to teach students about biology and urban forestry issues, but can also be used to teach geography, writing, history and math, and to develop leadership skills.

## Community Involvement

Community-building is crucial to the success of Learning Landscapes. PP&R works with Urban Forestry Neighborhood Tree Stewards, teachers, parents, students, and community members to design, plant, establish and maintain these school arboreta. PP&R facilitates this collaboration by working with the school district, neighborhood, students and teachers to create landscapes that meet the need of the individual school community.

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*By involving students and neighbors in the tree planting, the community has ownership of the trees and a tangible connection to their school.*

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## Tree Planting Experience

Learning Landscapes are planted by the school's students under the mentorship of middle or high school students and volunteers. On planting day, tree planting leaders teach students the benefits of urban trees, form and function of trees, and tree planting techniques. This leadership aspect of Learning Landscapes gives older students and volunteers the opportunity to connect with their peers, build confidence, and develop public speaking skills. Involving students and neighbors in the tree planting fosters community ownership of the trees and builds a tangible connection between school and neighborhood. This helps ensure a high tree survival rate by reducing vandalism and encouraging ongoing stewardship of the school's trees.

## Continued Hands-on Learning Opportunities

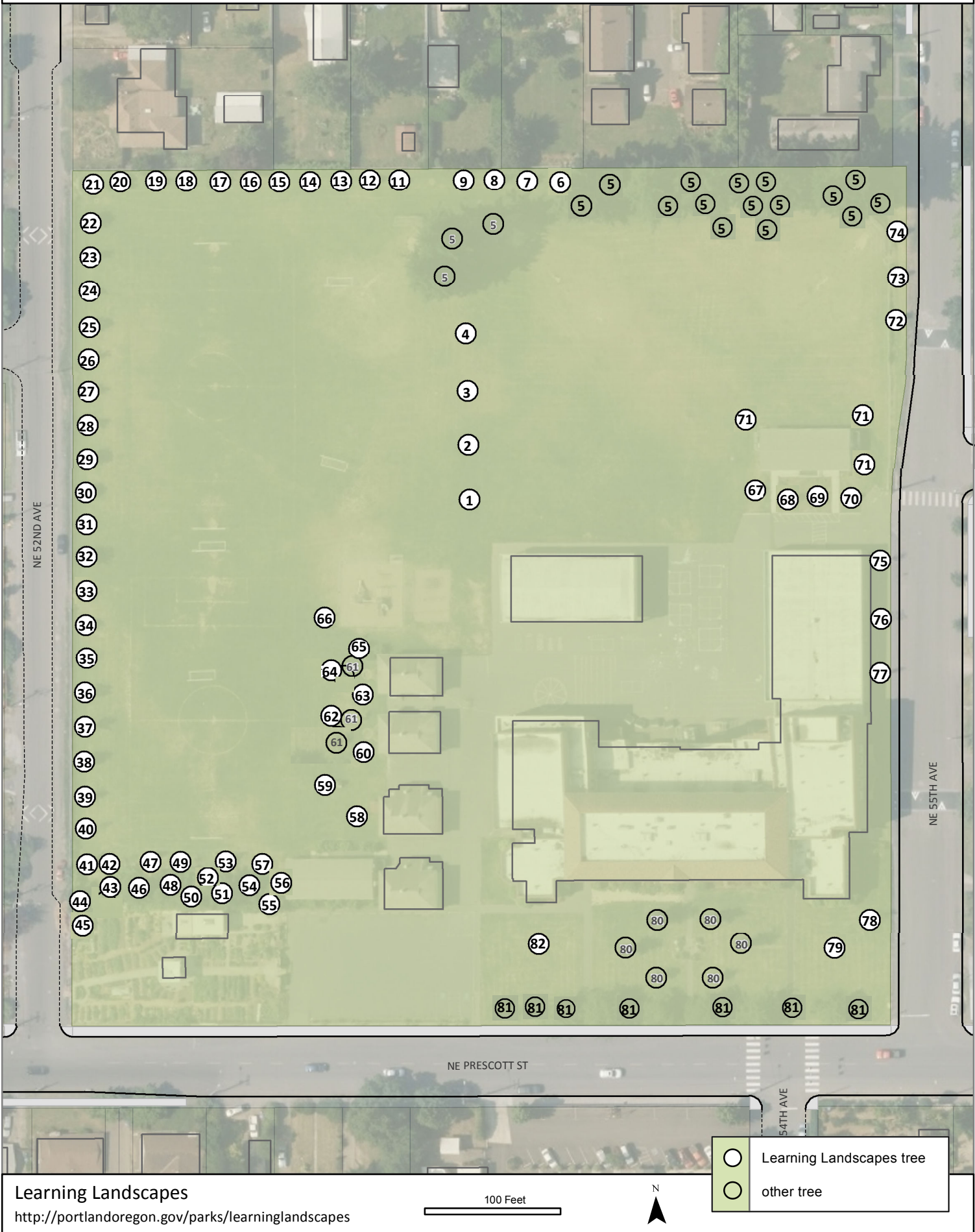
Once planted, Learning Landscapes are used by teachers and parents for service and leadership projects. Students and teachers continue to build projects around the trees with opportunities to water, prune, weed and mulch. These dynamic landscapes change year after year, depending on student and teacher interests, as new trees are planted and added to the collection.

## How can I get involved?

Visit <http://www.portlandoregon.gov/parks/learninglandscapes> for volunteer opportunities, to view more maps, and to learn how to plan a Learning Landscape in your community.



# Rigler Elementary School Tree Walk



# Rigler Elementary School Tree Walk

Tree #	Common Name	Scientific Name
1-3	giant redwood	<i>Sequoiadendron giganteum</i>
4	coast redwood	<i>Sequoia sempervirens</i>
5	Douglas-fir	<i>Pseudotsuga menziesii</i>
6	northern red oak	<i>Quercus rubra</i>
7	ruby red horsechestnut	<i>Aesculus x carnea 'Briotii'</i>
8	dawn redwood	<i>Metasequoia glyptostroboides</i>
9	Sierra oak	<i>Quercus canbyi</i>
10	Bosnian pine	<i>Pinus heldreichii</i>
11	Persian ironwood	<i>Parrotia persica</i>
12	sawtooth oak	<i>Quercus acutissima</i>
13	holly oak	<i>Quercus ilex</i>
14	Baker cypress	<i>Cupressus bakeri</i>
15	American yellowwood	<i>Cladrastis kentukea</i>
16	Japanese cryptomeria	<i>Cryptomeria japonica</i>
17	Shademaster honeylocust	<i>Gleditsia triacanthos</i> var. <i>inermis</i> 'Shademaster'
18	lacebark pine	<i>Pinus bungeana</i>
19	silver linden	<i>Tilia tomentosa</i>
20	Japanese pagoda tree	<i>Styphnolobium japonicum</i>
21	Oregon white oak	<i>Quercus garryana</i>
22	swamp white oak	<i>Quercus bicolor</i>
23	Musashino zelkova	<i>Zelkova serrata</i> 'Musashino'
24	Autumn Gold ginkgo	<i>Ginkgo biloba</i> 'Autumn Gold'
25	Bloodgood London planetree	<i>Platanus x acerifolia</i> 'Bloodgood'
26	Henry's maple	<i>Acer henryi</i>

Tree #	Common Name	Scientific Name
27	false arborvitae	<i>Thujaopsidolobrata</i>
28	sawtooth oak	<i>Quercus acutissima</i>
29	Green Column black maple	<i>Acer nigrum</i> 'Green Column'
30	American hornbeam	<i>Carpinus caroliniana</i>
31	silverleaf oak	<i>Quercus hypoleucoides</i>
32	accolade elm	<i>Ulmus japonica x wilsoniana</i> 'Morton'
33	Flashfire sugar maple	<i>Acer saccharum</i> 'JFS- Caddo2'
34	China Snow Peking tree lilac	<i>Syringa pekinensis</i> 'Morton'
35	black tupelo	<i>Nyssa sylvatica</i>
36	bur oak	<i>Quercus macrocarpa</i>
37	State Street ® Miyabe maple	<i>Acer miyabei</i> 'Morton'
38	valley oak	<i>Quercus lobata</i>
39	common hackberry	<i>Celtis occidentalis</i>
40	hardy rubber tree	<i>Eucommia ulmoides</i>
41	Green Column black maple	<i>Acer nigrum</i> 'Green Column'
42	Pacific madrone	<i>Arbutus menziesii</i>
43	Oregon white oak	<i>Quercus garryana</i>
44	incense-cedar	<i>Calocedrus decurrens</i>
45	Chinese plum	<i>Prunus salicina</i> cv.
46	Douglas-fir	<i>Pseudotsuga menziesii</i>
47	Sitka spruce	<i>Picea sitchensis</i>
48	ponderosa pine	<i>Pinus ponderosa</i>
49	California bay or Oregon myrtle	<i>Umbellularia californica</i>

Tree #	Common Name	Scientific Name
50	Cascara buckthorn	<i>Frangula purshiana</i>
51	western red-cedar	<i>Thuja plicata</i>
52	grand fir	<i>Abies grandis</i>
53	Douglas-fir	<i>Pseudotsuga menziesii</i>
54	vine maple	<i>Acer circinatum</i>
55	Cascara buckthorn	<i>Rhamnus purshiana</i>
56	vine maple	<i>Acer circinatum</i>
57	western hemlock	<i>Tsuga heterophylla</i>
58	California black oak	<i>Quercus kelloggii</i>
59	southern live oak	<i>Quercus virginiana</i>
60	chinkapin oak	<i>Quercus muehlenbergii</i>
61	red alder	<i>Alnus rubra</i>
62	coast live oak	<i>Quercus agrifolia</i>
63	blue oak	<i>Quercus douglasii</i>
64	interior live oak	<i>Quercus wislizeni</i>
65	southern plains Shumard oak	<i>Quercus shumardii</i> 'Southern Plains'
66	willow oak	<i>Quercus phellos</i>
67	lacebark elm	<i>Ulmus parvifolia</i>

Tree #	Common Name	Scientific Name
68	American yellowwood	<i>Cladrastis kentukea</i>
69	weeping Alaska yellow-cedar	<i>Cupressus nootkatensis</i> 'Pendula'
70	Emerald Sunshine elm	<i>Ulmus</i> 'Emerald Sunshine'
71	paperbark maple	<i>Acer griseum</i>
72	southwestern white pine/border pine/Mexican Pine	<i>Pinus strobiformis</i>
73	Shawnee Brave cypress	<i>Taxodium distichum</i> 'Mickelson'
74	Yoshino Japanese cedar	<i>Cryptomeria japonica</i> 'Yoshino'
75	Prairie Spire® green ash	<i>Fraxinus pennsylvanicum</i> 'Rugby'
76	espresso Kentucky coffeetree	<i>Gymnocladus dioica</i> 'Espresso-JFS'
77	Vanessa Persian ironwood	<i>Parrotia persica</i> 'Vanessa'
78	Patriot elm	<i>Ulmus</i> 'Patriot'
79	giant redwood	<i>Sequoiadendron giganteum</i>
80	purple leaf beech	<i>Fagus sylvatica</i> cv.
81	Kwanzan flowering cherry	<i>Prunus serrulata</i> 'Kwanzan'
82	giant redwood	<i>Sequoiadendron giganteum</i>

## Tree Facts, A to Z

### accolade elm,

*Ulmus davidiana* var. *japonica* 'Morton'

*Origin: Asia – China, Korea, Japan*

This deciduous tree was selected for its resistance to Dutch elm disease, which has devastated most American and European elms in the U.S. since 1930. The parent tree is a hybrid between two populations of the Asian elm *Ulmus davidiana* var. *japonica*. It was planted in 1924 at the Morton Arboretum in Chicago, and is also resistant to elm yellows and elm leaf beetle. Accolade is vase-shaped like American

elms but doesn't grow as tall – reaching 65' when mature and 25-30' wide.

Small green flowers in spring aren't showy. They are followed by papery, wafer-like samara enclosing a single seed. The dark green, toothed leaves have asymmetrical bases. Fall color is a good yellow. In Oregon, Accolade can scorch without adequate moisture.





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**Alaska yellow-cedar, *Cupressus nootkatensis***

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*Origin: North America - Alaska to Oregon*

This pyramidal to conical evergreen conifer has undergone a change in genus from *Chamaecyparis* to *Cupressus* as more became known from its DNA about its genetic origins. Native from extreme northern California north through Oregon and Washington all the way to Alaska, it is the world's northernmost cypress. Sphere-shaped seed cones are 2 1/2" to 5" long, dark reddish or purplish-brown when mature. Cones have two or three pairs of scales, each usually with a narrow, triangular point on the face and wrinkles radiating from there outward. It is often seen in cultivation as a very upright form with pendulous foliage. In the wild, the tree can exceed 100' but in cultivation is more commonly seen growing to 30-50' tall with a 15-20' spread.

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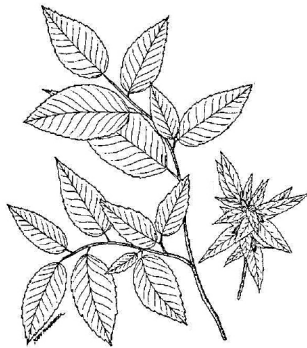
**American hornbeam or blue beech,**

*Carpinus caroliniana*

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*Origin: North America - Ontario, Canada south through the eastern USA to Florida*

A broadly oval small deciduous tree to 20-25'. Narrow leaves 4" to 5" long have doubly toothed margins and 8-12 straight parallel veins. Fall color ranges from gold to excellent shades of orange and in some specimens fiery red. Bark is smooth, light gray or grayish-brown and often sinuous, giving rise to its other common names of blue beech or musclewood. American hornbeam grows along streams in its native habitat, so it appreciates summer watering in Portland to look its best. In cultivation since 1812 but much rarer in Portland than the fastigate European hornbeams.



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**American yellowwood, *Cladrastis kentukea***

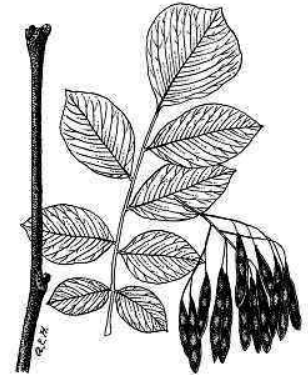
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*Origin: North America - Appalachia, southern Missouri and north Arkansas*

This deciduous broadleaf tree is one of the rarer U.S. trees in the wild. It is found most commonly along

streams draining the western slopes of the Allegheny Mountains in Tennessee and Kentucky, with outlying populations in northern Arkansas and southern Missouri. Prefers fertile, well-drained soils. Usually 30-40' high with equal spread but can reach 60'.

Compound leaves have 5 to 11 broad leaflets 3-4" long, turning butter yellow in fall.



In late May-early June the tree blooms spectacularly with wisteria-like white flowers in clusters 12-14" long at the ends of twigs. Trees don't flower until they are typically at least 10-12' tall, and may flower only in alternating years. Small, flat bean-like pods follow the flowers and ripen in September. Bark is smooth and gray. The heartwood is a clear yellow, hence the tree's name. The wood was occasionally used for gunstocks but has never been commercially important. Lives between 100 and 200 years.

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**Autumn Gold ginkgo,**

*Ginkgo biloba* 'Autumn Gold'

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*Origin: Asia - male cultivar of a Chinese tree*

Ginkgo is a pyramidal to rounded deciduous tree growing 60' to 100' tall. The bark has vertical scales, becoming deeply furrowed in maturity. The branches are alternate with leaves emerging from prominent 1/2" long nodes along the stem. Each node displays a whorl of approximately 5-7 fan-shaped leaves. Male and female trees are separate. The female tree produces edible fruit about 3/4" long, which have been described as "nature's stink bomb." Only one species of ginkgo tree remains in this ancient tree family that dominated forests millions of years ago. This cultivar is a symmetrically-branched tree eventually reaching 40' x 30' wide. Nice butter yellow fall color. Leaves in autumn tend to drop all together (within a few days of each other) making fall cleanup quick rather than drawn out over weeks. Tolerant of full sun or shade, with no pests or diseases. Best growth with summer watering the first several years until well established, then drought tolerant.

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**Baker cypress, *Cupressus bakeri***

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*Origin: North America – Oregon and northern California*

Broadly columnar, this native evergreen conifer may reach 90' under good conditions although the national champion exceeds 100.' It has attractive gray foliage, with scales usually covered in resin blisters. Bark is smooth when young, sometimes an attractive maroon-burgundy color. Globe-shaped, silvery cones are ½" to 1" long. Baker cypress reproduction depends on fire to open the cones and clear ground litter, so fire suppression over time can lead to reduction in the trees' numbers. The trees demand light and will decline if grown in shade. Extremely drought tolerant. Often found in serpentine soils or lava beds where few other trees can survive. It is native to Jackson and Josephine counties in southern Oregon and a few groves in northern California. Because it is found in fewer than 10 locations in its native range, Baker cypress is considered vulnerable to extinction.

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**black tupelo, *Nyssa sylvatica***

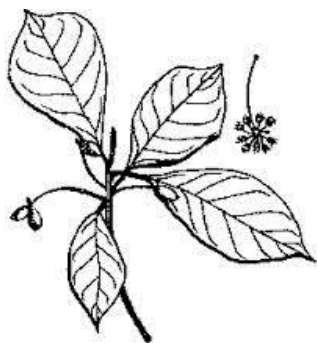
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*Origin: North America - eastern USA from eastern Texas and eastern Missouri across the South and north to New York, New England and southern Ontario, Canada*

Black tupelo is an 80' tall broadleaf deciduous tree native to the eastern United States. The leaves are smooth and long (up to 6"), emerging as clusters and twisting at different angles from the ends of branches.

Trees are dioecious, with males and females

occurring on different plants. A cluster of blue berries (smaller than ½") emerge from the end of the leaf clusters. These flowers and fruits are important food sources for bees and birds. The leaves turn from green to fiery red and yellow in autumn. The berries are said to taste bitter to humans but are an important food source for birds. This species likes wet habitats and is being planted more frequently as a street tree in Portland, especially in bioswales.



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**Blue oak, *Quercus douglasii***

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*Origin: North America – California*

A semi-evergreen oak native to the Coast Range of California and the foothills of that state's Sierra Nevada. The tree typically ranges from 20' to 60' tall, although the tallest specimen on record exceeded 90'. The common name derives from the blue-gray color of the lobed leaves, which persist in mild climates but typically drop in Oregon's cold winters. The species name honors Scottish plant explorer David Douglas, who encountered the tree while botanizing in California early in the 19th century. Acorns are eaten by a wide range of birds, deer, bear, squirrels and other small mammals. Almost every part of the tree was used by California's native peoples for firewood, bait, medicine, dyes, utensils, games, toys and construction materials. Blue oaks require full sunlight. They are extremely drought tolerant. Trees are long lived, with some specimens recorded as 500 years old.

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**Bosnian pine, *Pinus heldreichii* Syn. *Pinus leucodermis***

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*Origin: Europe - in the mountains of Bosnia, Serbia, Albania, Macedonia, SW Bulgaria, northern Greece (including Mount Olympus), and locally in southern Italy*

Growing 80' to 115' tall, Bosnian pine is an evergreen conifer of mountains in the Balkans, Greece and southern Italy. It can be found all the way to treeline, making it quite hardy and able to withstand strong winds. Because it also resists pests and air pollution, it is used to reforest mountains. The needles are 1.8 to 4 inches long. Cones are 2 to 3.5 inches long, with thin, fragile scales. The cones are dark blue/purple when young, maturing to brown. Bark is thick, ash-gray in young trees, later becoming ridged and furrowed with yellowish-brown, flattened and angular patches. The species was first described in 1863 as *Pinus heldreichii* by Swiss botanist K. Hermann Christ in honor of Theodor von Heldreich from specimens Heldreich collected on Mount Olympus, Greece. A year later, an Austrian botanist described a pine from Greece which he called *P. leucodermis*. Despite minor differences, modern studies show both are the same species, making *P. heldreichii* the correct name.



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**bur oak, *Quercus macrocarpa***

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*Origin: North America – Northernmost oak from the Canadian and U.S. prairies to New England*

This sturdy deciduous oak is often the last tree one sees before the land turns to treeless grass prairies. It is also the northernmost oak of North America, extending into Manitoba, Ontario and Quebec in Canada. Most abundant around the Great Lake states but extends into Texas and Kentucky. It is the state tree of Iowa. Bur oak has

the largest leaves of any North American oak from 6-12" long and 3-6" broad at the upper half, with 5 to 7 rounded lobes. They are silvery green beneath. Yellow-green catkins are 4" to 6" long appear in spring. Acorns are from three-quarter to 2" long and more than half surrounded by a conspicuous fringe (hence the name "bur" oak). Usually not more than 80' tall, exceptional old-growth specimens have been recorded at over 150'. A long-lived member of the white oak family, capable of exceeding 300 years. French botanist Andre Michaux (1746-1802) was the first to describe this oak in a scientific journal.



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**California bay or Oregon myrtle,**

*Umbellularia californica*

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*Origin: North America - from southern Oregon through coastal California*

California bay, also called Oregon myrtle, is a broadleaf evergreen native to southwest Oregon, south along the Coast Range and Sierra Nevada to southern California. It grows up to 175'. Thick, glossy, dark green leaves are 3-4" long, and are extremely pungent and reminiscent of bay leaves. The fruit look like olives and is highly prized by birds. The wood is pale brown with dark brown streaks in the grain. It is valued for veneers, high quality furniture and craft work and many tourist shops sell myrtle wood crafts. The natural oils in it give the

wood a superb polished finish. The leaves of this tree can be used in cooking as a substitute for bay leaf but have a much stronger flavor. Native American tribes used the leaves to repel fleas and to treat headaches and poison oak dermatitis.

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**California black oak, *Quercus kelloggii***

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*Origin: North America – from southern Oregon through California*

Famous for being the dominant oak in the valley of Yosemite National Park, this deciduous tree can be found as far north as south-central Oregon. It occupies more land than any other California hardwood tree, and is an important lumber tree.

California black oak normally grows from 30' to 80' tall but can reach 100' or more in favorable sites. Trees typically live 100 to 200 years, but some individuals are known to have attained 500 years. Acorns are more than an inch long. Dozens of bird and mammal species favor them for their nutritive value as did Native American tribes. Leaves are lobed and turn brown to gold or even orange in fall. They provide important fodder for browsing deer and livestock. Bark is grayish-brown and becomes fissured with age.



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**cascara buckthorn, *Rhamnus purshiana***

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*Origin: North America - Oregon, Washington, northern Idaho, British Columbia and California*

In the wild a multi-stemmed shrub but in street plantings a single-trunked tree 30' to 40' tall. The thin bark varies from dark brown to ashy gray, often with chalky white patches. The bark has a strong laxative effect. In bad economic times many people have supplemented their income by harvesting cascara, stripping the bark in the spring when the sap is running so it can be made into a commercial laxative. The development of synthetic laxatives has cooled the market for wild bark. Small greenish flowers are born in clusters among the leaves in

spring. They are followed by dark purple fruits about 1/3" of an inch long. These contain a bitter chemical with a strong laxative effect. Although birds and raccoons will feed on the fruit, they are considered inedible for humans. Elliptic leaves have parallel veins in a chevron from midvein to leaf edge, with blades 2 1/2" to 6" long. They turn yellow to golden brown in autumn. Occasionally a tree will have hints of orange to red.

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**China Snow Peking lilac,**  
*Syringa pekinensis 'Morton'*

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Origin: Gansu province, China

A multi seasoned small tree (to 25') with clusters of fragrant white lilac blossoms in June, an attractive upright shape and distinctive exfoliating bark, quite similar to *Acer griseum*.

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**Chinese plum, *Prunus salicina***

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Origin: Asia - China but long cultivated in Japan

*Prunus salicina* grows up to 33' tall, and has reddish-brown shoots. The leaves are 3" to 6" long and 1" to 2.5" broad, with a serrated margin. The flowers are produced in early spring, with five white petals. The fruit is a drupe with yellow-pink flesh; it can be harvested in the summer. When fully ripe it can be eaten raw. Many different varieties of *Prunus salicina*, some being hybrids, are cultivated in China. There, candied fruits are sold preserved, flavored with sugar, salt, and liquorice. Chinese plum is also widely cultivated in Japan and Korea. The most famous variety of this fruit in Vietnam is the Tam Hoa plum grown in Lào Cai Province. Cultivars of the species were greatly improved in Japan and thence introduced to the U.S. in the latter half of the 19th century, where many more cultivars with larger fruit were created. Many of these American cultivars have been exported. Most of the fresh plums sold in North American supermarkets are *Prunus salicina* cultivars.

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**chinkapin oak, *Quercus muehlenbergii***

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Origin: North America – Ontario, Canada to Texas with groves in NE Mexico

A deciduous oak with a narrow, rounded crown.

Usually 50' to 80' tall but can reach 100'. Leaves are 4" to 6" long, narrow and pointed at the tip. They superficially resemble a chestnut leaf, hence the tree's common name – chinkapin being a common name for an American chestnut. Fall color is gold or brown but can be orange or reddish. The acorns appear singly or in pairs. They are usually three-quarters of an inch or less in length. Grows on bluffs and rocky river banks at elevations from 400' to 3,000'. Has one of the widest natural distributions of any North American oak. Unusual for most oaks, it tolerates alkaline, limestone soils. A member of the white oak group, with light gray, thin bark similar to that of *Q. alba*. The wood is heavy, hard, strong and stiff and was used for planks in bridges and railway ties. The species name honors an early German-American botanist from Pennsylvania, Henry Ernst Muehlenberg (1753-1815). The tree has been in cultivation since 1822.

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**coast live oak, *Quercus agrifolia***

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Origin: North America – California from Mendocino to Baja California, Mexico

This evergreen oak is designed to maximize the amount of light its leathery leaves receive from the sun. As a result, it forms a dense, rounded tree supported by a framework of thick, gnarled limbs and branches spreading close to 130' across. Their thick bark

protects them against the periodic fires that sweep their homeland in coastal California from Mendocino south to Baja California at elevations below 5,000'. At least a dozen Native American tribes harvested the acorns for food, leaching out the tannins first. The first Catholic mass that took place in Monterey, CA, was held under a coast live oak. Spanish settlers cut them for charcoal to fuel their lime kilns, used in the making of adobe mortar. European-Americans cut even more for firewood, ship timbers and charcoal for bakeries and the gunpowder industry. Trees can live 250 to 400 years. Sudden oak death – a complex tree pathogen – has been claiming large numbers since the early 2000s.



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**coast redwood, *Sequoia sempervirens***

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*Origin: North America - from Central California coast north to Curry County in SW Oregon*

Coast redwood is the tallest tree in the world, with the largest tree standing over 370' tall - that's about one-quarter the height of the Empire State Building! The red-brown bark is spongy, papery, and fire resistant. The leaves, bright green above and pale blue-green below are made up of both scales on the shoots and needles averaging 1/2" long. The brown cones are round and about 1" long; cones need fire heat to open and disperse the seeds. Sometimes the bark grows burls that can fall off and sprout into a new tree. Redwoods typically live to a ripe old age, usually 600 years or more; however, one old stump contained about 2,200 tree rings. The trees range from southwest Oregon's Curry County to the middle of the California seacoast, where the trees are able to capture coastal mist to supplement water supply. The thin needles make the tree easily stressed by drought.



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**common hackberry, *Celtis occidentalis***

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*Origin: North America - from the Great Plains east to the Atlantic seaboard as far south as northern Georgia and east-central Texas*

Hackberry is an alternate-branching, deciduous tree growing 50–80' tall. The leaves are 2" to 4" long, pointed and toothed with three main veins branching out at an uneven base. Young bark is smooth and light gray, but it soon develops corky warts and abundant warty ridges. It bears numerous sweet red then purple pea-sized berries that birds love and supports a wide range of galls and mites on the foliage. The hackberry is closely related to elms, but is resistant to Dutch elm disease. The canopy spreads wide like an elm, but is more "O"-shaped rather than "V"-shaped. This tree thrives in towns and cities, but is frequently referred to as "the unknown tree," because its values are understated compared to other majestic urban trees. The name "hackberry" is thought to derive from

*hackberry*, a Scottish name for a cherry species.

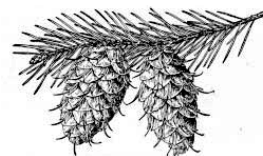
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**dawn redwood, *Metasequoia glyptostroboides***

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*Origin: Asia - central China*

Dawn redwood grows to about 120' tall, smaller than both the coast redwood and giant sequoia. The deciduous stems are in an opposite branching pattern, while previous year shoots and buds are spaced spirally around the branches. New leaves (about 1" long) are lime green, turning darker green through the summer and orange in fall. The cones (about 1" round) are green earlier in the season and turn to brown before ripening. Dawn redwood flourished in North America in the Miocene age (5 to 25 million years ago) and left a fossil record embedded in rocks across the Oregon landscape. However, the tree was thought to be extinct until a small grove was discovered in China in the 1940s. Seeds were collected and sent to arboreta around the country to reintroduce the species, and Portland's Hoyt Arboretum became the first location in North America to grow a tree to produce seeds in millions of years. Dawn redwood is Oregon's state fossil.



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**Douglas-fir, *Pseudotsuga menziesii***

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*Origin: North America - from British Columbia south to Oregon, Washington, California, Idaho and western Montana with a subspecies in the Rocky Mountain states and into northern Mexico*

Not a true fir, Douglas-fir may grow up to 250' tall and 10' in diameter, although specimens have been found that are 330' tall. Young trees sometimes emit long columns of sap through the bark. The needles (about 1" long) are green above and blue-green underneath with two white lines running parallel to the length. Needles are dense and scattered around the stem. The cones are about 3½" long with distinct bracts sticking out. Some say the bracts look like a pitchfork or the hind legs and tail of a mouse. The tree also has a strong pine-like scent which can be smelled by crushing the needles or walking through a forest dominated by Douglas-fir. Douglas-fir has been the state tree of Oregon since 1939 and has been



used as the main source of construction lumber for Oregon and the rest of the United States. Douglas-fir is also harvested for Christmas trees.

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**Emerald Sunshine elm,**  
*Ulmus propinqua* 'JFS-Bieberich'

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*Origin: Asia - China*

This cultivar was selected from seed from the Chinese elm *Ulmus propinqua* by Oklahoma plantsman Steve Bieberich. Shorter than most elms, Emerald Sunshine reportedly only grows to about 35' with a spread of 25' and an upright, vase shape. In field trials it proved highly resistant to elm leaf beetles. It also resists phloem necrosis and Dutch elm disease. Leaves emerge with a slight reddish tinge in spring, becoming deep green. Heavily veined leaves turn gold in fall with orange highlights. Flowers in early spring are insignificant. Papery seeds appear in late spring. Tolerates different soils, heat and drought.

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**Espresso Kentucky coffee tree,**  
*Gymnocladus dioica* 'Espresso-JFS'

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*Origin: North America - Western New York and Ontario, Canada across the Midwest to the edge of the prairies*

*Gymnocladus* is Greek for "naked branch," which describes the Kentucky coffee tree's habit of not leafing out until late spring (often mid-May). Twigs are often thick and blunt-tipped. The ascending branches form a high, irregularly-rounded crown. In June, clusters of whitish-purple flowers hang inconspicuously among the leaves. Male and female flowers are on separate trees. Female trees will produce castanet-like brown pods 6" to 10" long. This cultivar is a male clone of the Kentucky coffee tree, selected because it lacks the female's pods and their poisonous seeds. Height is about 50' and spread 30'. Compound leaves can be 2' long, with bipinnate, pointy leaflets 2" to 2 ½" long that are green on top and lighter underneath. They turn yellow in fall. Although in the bean family, Kentucky coffee trees are not nitrogen fixers. There are only two species in this genus (the other is in China). Seldom lives more than 100 years.

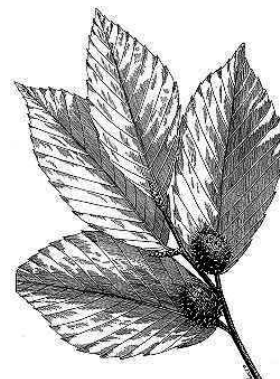
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**European beech, *Fagus sylvatica***

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*Origin: Europe - England, western and central Europe to Scandinavia*

One of the largest and most stately deciduous trees, European beech can easily reach several hundred years of age and grow to 100' tall. Trees grow out and upward, creating a full, oblong shape. The bark is smooth and gray; older trees have prominent folding in the bark around branches, knots, or wounds, resembling elephant legs. Carving into the smooth bark of beech trees can harm the active growing layers and make it more susceptible to disease. Branching is opposite, with thick, prominently margined leaves. Leaf edges are generally toothed and wavy. The nuts, enclosed in hairy husks about ½" long, are an important wildlife food and have been harvested by people as well. European beech has been cultivated for particular shapes and colors, including weeping, slender, and purple varieties. Beeches are also subject to infestation by the beech wooly aphid, which appear as hairy white patches, usually on the underside of leaves. These rarely cause serious harm.



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**false arborvitae, *Hiba arborvitae*,**  
*Thujaopsis dolobrata*

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*Origin: central Japan*

This rare evergreen conifer with a straight trunk can reach a height of 50'. The lustrous green foliage color in combination with the showy white marks on the undersides add to the glamour of this slow growing, dense, pyramidal, sun loving tree. The cones are subglobose, up to ¾" long and contain 6-8 thick, very woody scales and end with a very pointed projection. The tree does best in moist forests with protection from strong winds.

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**Flashfire Sugar Maple, *Acer saccharum* 'Flashfire'**

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*Origin: Japan*

Wide branches that sweep low to the ground and

deeply furrowed, corky bark are among the charms of this densely branched shade tree. Though Miyabe's maple is listed as endangered in its native habitat in Japan, several cultivars are considered hardy, adaptable urban street trees. The dark green leaves turn golden in fall. Grows 35 to 50 feet tall with a uniform, oval to rounded shape. It has shown excellent heat and drought tolerance, as well as tolerance of alkaline soils. The thick, 5-lobed, attractive medium to dark green leaves remain long into fall, then rapidly change to a pale golden-yellow fall color. The parent tree was selected from the collections at The Morton Arboretum.

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**giant sequoia, *Sequoiadendron giganteum***

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*Origin: North America - California in the Sierra Nevada*

Giant sequoias are the world's largest tree by volume. The tallest can reach over 250' - shorter than the world's tallest trees - their coastal redwood cousins. Long lived trees, the oldest (as determined by ring count) was 3,500 years old. Millions of years ago the trees were widespread around the planet, growing in the Arctic during warmer periods in Earth's history. The trees eventually died out everywhere but in the Sierra Nevada of California. Restricted in nature now to only a few dozen isolated groves in a narrow elevational band between 4,500 and 7,100 feet, the trees were first discovered by Western scientists in the 1850s. Bark is fibrous. Needles are in flat sprays, sometimes with a decided bluish-gray color. Cones are small (1.6 to 2.8 inches long).




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**grand fir, *Abies grandis***

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*Origin: North America - Oregon, Washington, Idaho, northern California, western Montana and British Columbia, Canada*

Grand fir is abundant in moist forests in both coastal lowlands and mountains up to 5,500 feet. Grand firs have stiff, horizontal branches in whorls from a straight central leader growing 100' to 150' or higher (more than 200' in Olympic National Park). Unlike other conifers, grand firs can develop twin new

leaders if the top dies. Gray or reddish-brown bark is furrowed and divided into narrow, flat plates. Cones are 4" long, green to reddish and covered with smooth scales, sitting upright on the branches. The soft, white wood is pulped to make high-quality paper. Native Americans along the Columbia used the flat branches for bedding and floormats. A brown dye from the bark was used in making baskets by the Straits Salish tribe.

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**Green Column black maple,**  
*Acer nigrum* 'Green Column'

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*Origin: North America*

Greencolumn was selected in 1959 from a stand of trees in central Iowa because of its superior performance over sugar maple to heat and dry conditions. Introduced into commerce in 1975, it is an upright, rather narrow tree usually reaching 50' but up to 70' with a spread of 20'-30'. Small hairs on the underside of the leaves distinguish it as a subspecies of the sugar maple, as does darker bark and leaves. Some taxonomists believe black maple should have species status separate from sugar maple, and some reference books list it as such. Leaves are 6" long with three to five lobes. Fall color is yellow-orange. In colder climates its sap can be tapped to make maple syrup like its close relative the sugar maple. Yellow flowers in spring as leaves appear. Double-winged samaras have two seeds, with the wings pointing down at only a slight angle. Bark develops raised ridges with age.

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**hardy Chinese rubber tree or eucommia,**  
*Eucommia ulmoides*

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*Origin: China - native to central China*

This deciduous native of China grows 40' to 60' tall by 25' to 35' wide. It has a round, spreading crown. The flowers are small and insignificant, lacking petals. Male and female flowers appear in April on separate trees. If fertilized, the female flowers produce single-winged seeds 1.5" long. Leaves are serrate-edged, dark green, and elliptic to ovate in shape with pointed tips. The tree produces a small amount of natural rubber, which can be seen as sticky threads when a leaf is torn in two. The amount of latex is too low to make the tree a commercially viable source of rubber. *Eucommia*'s leaves drop while still green. Trees are called *tu chung* in Chinese. The bark is harvested in

April. The medicine made from the ground bark is called *duzhong* in China. Wild trees have become scarce due to overharvesting. Trees were introduced to the United States from cultivated plants in China in 1907. Tolerant of clay soil, air pollution and drought. Prefers full sun.

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**Henry's maple, *Acer henryi***

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*Origin: Asia - central China, mainly in Hubei and Sichuan provinces*

Rarely encountered in Portland, this deciduous Chinese maple is noted for its trifoliate compound leaves with leaflets 2" to 4" long. While the tree is very similar to *A. cissifolium*, the leaves of that species are usually strongly serrated or toothed, while those of *A. henryi* are usually smooth margined or only randomly or irregularly serrated toward the tips. Henry maple is most noted for the long, showy chains of reddish samaras. Seeds are seldom fertile because both male and female trees are needed to set fertile seed. Young stems are green, aging to olive. Fall color varies from yellow to orange and pastel red. The species name honors Irish plant hunter Augustine Henry (1857-1930). The first scientific description was done in 1889.

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**holly oak *Quercus ilex***

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*Origin: Europe-Africa - Mediterranean, including Morocco and Algeria in North Africa, Malta, Spain, Portugal, and Italy*

A long-lived evergreen white oak from the Mediterranean attaining 65' to 90' tall. The Latin name for the species means "holly" because often leaves on young trees are spiny, resembling those of a holly. Leaves are pale white underneath. Acorns are long and quite pointed at the tip. Bark is dark brown to almost black, with many cracks and fissures forming small plates and ridges. In Morocco, holly oak grows in association with Atlas cedar. The first ones planted in England in the 1500s are still living. Some trees in stands there are also reputed to be more than 500 years old. Holly oak is the national tree of Malta. They are known as "encina" or "carrasca" in Spanish and "alzina" in Catalan.

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**incense-cedar, *Calocedrus decurrens***

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*Origin: North America - from Oregon south into California and northern Baja California in Mexico.*

Evergreen conifer with single straight trunk and capable of reaching 185'. Usually densely branched, columnar in form (broader in nature but with narrow forms common). The needles are held in flattened sprays. Golden-yellow pollen is shed in winter and early spring. Oblong cones have three alternating pairs of scales with a bump just below the tip. Bark is smooth on young trees but becomes fibrous and reddish-brown with age. Highly decay-resistant wood is light, soft and fragrant, giving rise to the tree's common name in English. Primarily used to make pencils but also used in the Far West to make fenceposts or shingles. Trees can live 350 to 500 years. Only two other species in *Calocedrus* are known - both in Asia.

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**interior live oak, *Quercus wislizeni***

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*Origin: North America - California on upland slopes below 5,000' and in the Mexican state of Baja California*

An evergreen oak native to California and noted for its drought and heat tolerance. Can reach 70' but is usually shorter. Often as



broad as they are tall and densely branched. Leaves

are leathery, elliptical, and up to 3 inches long. They can be smooth, toothed or spiny like a holly. On young trees, bark is smooth and light gray, becoming fissured and darker with age. Narrow acorns are cone-shaped and ¾ to 1 ½ inches long. They sit deeply in their cup and take up to two years to ripen. Many birds and animals eat the acorns and shelter in this tree. The trees survive in areas receiving as little as 15" of rain annually or up to 50".

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**Japanese cryptomeria, Japanese cedar**

*Cryptomeria japonica*

*Origin: China and Japan*

This graceful pyramidal conifer has been cultivated in Japan for hundreds of years. With spirally arranged and awl-shaped leaves that persist 4-5 years, the unique leaf shape distinguishes this evergreen tree. The leaves are keeled on both surfaces and have a blunt pointed tip. The base of the leaf clasps the stem. The cones are



globular and up to 1" in diameter. The reddish brown barks peels off in long strips and contribute greatly to the aesthetic appeals of older specimens. Many unusual variations have been found, contributing to the appeal of the tree for many plant enthusiasts wishing to have more dwarf forms with unusual characteristics (height, and growth form). In Japan, this tree is the most popular native timber tree and grows much taller (200') than any specimens seen in the United States (70'). It can thrive near the ocean where it tolerates salt spray and prefers the dampness.

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### Japanese pagoda tree,

*Styphnolobium japonicum* Syn. *Sophora japonica*

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*Origin: Asia - China (despite the name the tree was introduced to Japan)*

A deciduous broadleaf tree long cultivated in China and Japan. Grows to 50-70' tall with equal spread. Twigs are greenish, turning light brown. Bark on older trees is thinly furrowed. Bipinnately compound dark green leaves cast a light shade. Trees don't bloom for several years after planting. In late summer (Aug.-Sept.) pea-like white flowers in numerous showy racemes appear. These are followed by 6-12" long pods that turn yellow and then grayish-brown. Although in the pea family, this tree cannot fix nitrogen from the air as it lacks the necessary rhizobia bacteria. Tolerates air pollution, heat and drought. Lifespan is usually 50 to 75 years but can be 250 years. Called *huai shu* in China (demon tree), it was considered ill luck to use the wood for homes. The last Ming Emperor, Chongzhen (ruled 1627-1644), hung himself from this tree when revolting peasants broke into the Forbidden City. It is the official city tree of Beijing. Trees are subject to a canker disease.

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### Kwanzan flowering cherry, *Prunus serrulata* 'Kwanzan'

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*Origin: Asia - northern and central China, Korea and Japan*

Kwanzan flowering cherry typically grows 20' to 35'. One of the most variable characteristics of flowering cherry is the flowers. This cultivated variety has pink, double flowers, from 1/2" to 2 1/2" across. Usually

they are quite showy but last only a short time in spring. Fall leaf color is usually good - from orange to red. Surface roots tend to lift sidewalks. The foliage is susceptible to numerous diseases (including viruses and cankers) and borers, which shorten the life of the tree. 'Kwanzan' is the hardiest and one of the most popular cultivars grown in Portland, having deep-pink, double flowers.

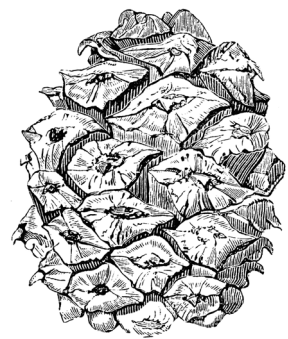
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### lacebark pine, *Pinus bungeana*

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*Origin: Asia - China*

Small to medium evergreen conifer usually 30' to 50' tall but capable of reaching 80' in the wild. In nature often has multiple, leaning trunks. Key feature is pale, mottled bark. In western Oregon the bark is usually shades of green and gray, but in more continental climates flakes in patches of gray, silver and red. Sparse needles are in bundles of three, stiff, rigid, sharp-pointed and about 3 1/2" long. The cones are a light brown and 2 1/2" long with short, reflexed spines. The seeds are eaten in China. In both China and Korea the trees are frequently planted at temples because of their decorative bark and because they symbolize longevity. The tree was first scientifically described by German botanist Joseph Gerhard Zuccarini (1797-1848). The tree was first brought into Europe by Alexander von Bunge (1803-1890), who collected plants for two years in China. Bunge was an ethnic German born in Ukraine who lived most of his life in Estonia.



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### London planetree, *Platanus x acerifolia*

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*Origin: Europe - a hybrid between the North American Platanus occidentalis and the European Platanus orientalis*

London planetree is a deciduous tree growing to 115' tall. The bark peels back in plates, revealing light gray, yellow, and even orange hues of underlying bark. Shedding bark is a way for the tree to shed pollutants and breathe with new bark again. Older trees develop bumps that make the bark look like dripping candle

wax. The thick leaves (about 5–8" long) are fuzzy beneath when young and have a similar shape as maple leaves. There are three to five main lobes radiating out from the center of the stem. The edges of leaves are toothed, tapered, and pointy. The spiky round fruits (about 1" diameter) are also unique, spaced out along a stem like beads on a necklace. London planetree may be the most popular urban street and park tree planted across the United States and Europe. Tree populations that are clones tend to become diseased easily. London planetree also grows quickly and has been grown for timber, especially for a particular expensive type of wood called lacewood.

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### **Musashino zelkova, *Zelkova serrata* 'Musashino'**

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*Origin: Asia - Japan, Korea, China, Kuril Island of Russia*

The most common species of zelkova in Portland is Japanese zelkova, *Z. serrata*. It has simple, serrate-edged leaves that are tapered at the tips. Zelkovas have a dense, oval head, but Japanese zelkovas tend to be more vase-shaped and spreading. Musashino grows to 45' tall and was selected for its extremely narrow, columnar growth habit to only 15' wide. Same leaf shape and bark characteristics as the species. Fall color is yellow. The small flowers of all zelkovas are greenish and lack petals. The female flowers are borne in the leaf axils while the male flowers cluster at the base of the shoots. Zelkovas are resistant to verticillium wilt.




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### **northern red oak, *Quercus rubra***

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*Origin: North America - eastern Canada and eastern USA from the eastern edge of the Great Plains east to the Atlantic and south to Alabama, Georgia and Arkansas*

Northern red oaks are a tall (up to 150') tree native to eastern North America. Their bark has narrow fissures. The branches and canopy often begin high up on the tree, making it easy to walk beneath them. The branch arrangement is alternate. The leaves (up to 8" long) are thick and waxy. They are light lime green in spring, turning dark green in summer, and

gold to crimson red in fall. Each leaf is deeply lobed, with each lobe ending in a fine, almost prickly point. The acorns are round and robust with a thin cap. The acorns, which take two years to mature, are an important food source for wildlife, especially squirrels that like to bury and store acorns in the fall. The wood is fast growing and hardy, and is used in cabinetry, furniture and flooring. Northern red oak is often planted in parks and urban areas as a large shade tree. It is the state tree of New Jersey and the provincial tree of Canada's Prince Edward Island.

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### **Oregon white oak, *Quercus garryana***

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*Origin: North America - southern British Columbia, Canada through Washington and Oregon west of the Cascades and northern California*

Oregon white oak is a deciduous tree growing up to 90' tall. Branches are dense and wide, with limbs of solitary trees reaching to the ground. The leaves (3–6" long) are thick and shiny with rounded lobes. A distinguishing feature is the presence of galls on the underside of leaves or small twigs. The galls are the home of little wasps that lay their eggs inside oak leaves. The fruit of the Oregon white oak is an acorn about 1" long that protrudes from a narrow cap. These trees prefer open grassland habitats where they cannot be shaded out by other species. Oregon white oak was once one of the predominant trees in the Willamette Valley, but has declined to only 1% of its original range due to land development for farms and cities, and a reduction in wildfires. The tree's nickname, Garry oak, is after Nicholas Garry, the secretary of Hudson's Bay Company who helped botanist David Douglas.




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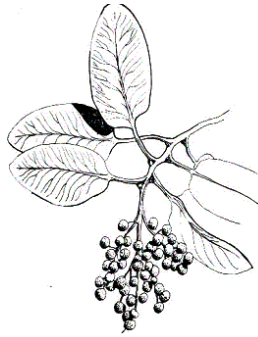
### **Pacific madrone, *Arbutus menziesii***

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*Origin: North America - Oregon and Washington west of the Cascades, northern California and British Columbia, Canada*

The Pacific madrone is a native broadleaf evergreen that can grow up to 100'. Young bark is chartreuse and

smooth, while the older bark is dark brownish-red and peeling. Leaves are simple, alternate, oblong, 3–5" long, and are dark green on top and light green or golden-scaly below. Margins are smooth or finely serrated. Stems and trunks tend to lean and twist. Flowers are white, urn-shaped, and fragrant in large drooping clusters. The fruit is orange-red, pea-sized with a pebbly surface, and appears in the fall. British plant hunter Archibald Menzies first described the species based on trees seen on the Olympic Peninsula in 1792. A Straits Salish story describes the madrone as the tree used by the survivors of the Great Flood to anchor their canoe to the top of Mount Newton (B.C.) To this day, the Saanich people do not burn madrone in their stoves because of the important service this tree provided long ago.




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### **paperbark maple, *Acer griseum***

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*Origin: central China*

This deciduous tree offers many season interest with its foliage, bark and form. The trifoliate leaf emerges as a lime green in the spring, darkens to a bold green in summer and finally transforms to a scarlet or red in the fall. With the dropping of the leaves in the fall, the exfoliating copper-colored bark proclaims beauty to all beholders. The green hanging flowers in the spring are not spectacular. The mature height of 20' – 30' is appropriately scaled for smaller outdoor spaces. The tree was widely used as a street tree planting in Portland in the early 21st century.

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### **Patriot elm, *Ulmus 'Patriot'***

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*Origin: Asia/Europe hybrid*

The National Arboretum introduced this deciduous hybrid elm in 1993 for its excellent resistance to Dutch Elm Disease and phloem necrosis. Patriot is extremely cold hardy and can withstand water-logged soils. It represents a complex cross between *U. wilsoniana*, *U. pumila*, *U. carpinifolia* and *U. glabra*.

Foliage is bold textured and darker green than that of most elms. They turn yellow in autumn. The tree has stiffly ascending branches forming a narrow, vase-shaped tree to 50' tall by 40' wide. Only moderately resistant to elm leaf beetle, which may skeletonize some leaves.

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### **Persian ironwood, *Parrotia persica***

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*Origin: Asia – Alborz Mountains of Iran, Talish Mountains of Azerbaijan and the Caucasus*

Native to Iran's Alborz Mountains, where it forms part of the lush Caspian-Hyrcanian forest, and the Caucasus. A deciduous tree, Persian ironwood grows 20' to 45' high and often spreads as wide. Leaves are dark green in color and veined. Fall color varies from pure yellow to shades of orange, red or purple; multiple colors are often on the same tree. Small red shaving-brush flowers without petals appear in late winter but aren't showy. Slow growing, Persian ironwoods have strong wood; their branches rarely break in wind or ice storms. With age, patches of bark flake off, giving their trunks a lovely cream and gray mottling. Generally free from pests and diseases. Persian ironwood is in the same family as witch hazels. Rare in Portland before the 1990s, it has become a widely planted this century due to its drought tolerance, strong wood, lack of messy fruits and good fall color.

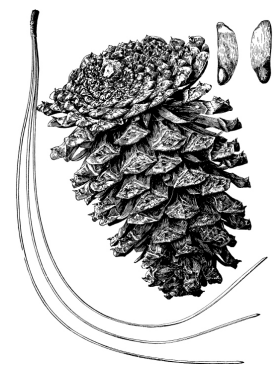
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### **ponderosa pine, *Pinus ponderosa***

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*Origin: North America - from British Columbia, Canada south through the Northwest and other Western states east to Nebraska and south to northern Durango and Tamaulipas states in Mexico.*

Ponderosa pine is the most widely distributed pine in North America after lodgepole pine. In 1826 David Douglas first named the tree *ponderosa* after the ponderous, or heavy, wood. These evergreen trees grow up to 180' tall and may live 500 years or more in the wild. Needles are 5–10" long and grow





in bundles of three. Cones are egg-shaped and 3-5" long. As ponderosa pines age, their bark turns from a dark brown to a yellow or orange hue, giving older trees the nickname "yellow bellies" or "punkins." For a sweet surprise, cuddle up with a yellow belly and smell the cracks in the bark—it's reminiscent of baking cookies with sweet tones of vanilla and butterscotch. Lumber is valued for light construction and millwork. Native Americans who lived near ponderosa pines had many medicinal uses for the tree, and some also used the roots to make a blue dye. The seeds are consumed by a wide range of wildlife.

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**Prairie Spire® green ash,**  
*Fraxinus pennsylvanicum* 'Rugby'

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*Origin: North America - cultivar*

Opposite-branching, medium-sized tree generally 40-60' tall although some trees in the wild have reached 100' or more. This cultivar grows 45' tall by 20' wide. Compound leaves are 9" long with 5 to 9 leaflets 3 1/2" long and a terminal leaflet. The undersides of the leaves are pale but not as whitish as on white ash. Leaves typically turn yellow in fall. Mature bark is gray with diamond-shaped furrows. Narrow and regularly branched, this cultivar was not named for the rowdy English sport but for the town in North Dakota where it was discovered and propagated by North Dakota State University scientists. Its origin in the cold north plains makes this an exceptionally hardy tree tolerant of conditions much colder than in Portland. Unfortunately this tree, like seemingly all ashes, is not able to withstand the emerald ash borer, which has rapidly been chewing its way toward Portland from the east.




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**red alder, *Alnus rubra***

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*Origin: North America - Oregon, Washington northern California, northern Idaho, SE Alaska and British Columbia, Canada*

The largest, most common Pacific Northwest alder is

the red alder. This deciduous, broadleaf tree is typically 60' to 80' tall. The largest on record was over 140'. Fast growers, they are very short-lived trees, often declining rapidly after just 60 years. The smooth bark is often covered with a light-colored lichen. The leaves are 4-6" long with rounded teeth on the edges. They grow from sea level to 3,000 feet, mostly west of the Cascades, with a few groves in wet areas as far east as northern Idaho. They prefer moist soils and are common along streams, where they form pure stands. Native Americans valued the bark as a medicine (it contains salicin, the pain-relieving ingredient in aspirin) as well as a red dye, which they used to dye fish nets to make them harder for fish to see. They also made wooden utensils from the wood. Once considered a trash tree by loggers, the wood is now valued for cabinetry. Alder wood is preferred for smoking salmon.

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**ruby red horsechestnut, *Aesculus x carnea***

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*Origin: Europe-North America hybrid*

Palmately compound leaves wider near the tips and narrow at the base. Red horsechestnut is a hybrid between the European horsechestnut and the red buckeye from North America (*Aesculus pavia*). Forms a shorter tree than the European horsechestnut, generally under 45' with a rounded shape. Bark on older trunks is gray-brown and scaly with long, thin plates. Fall color is usually unremarkable, a drab yellow brown. Fruits are spiny, 3-parted leathery capsules 2" wide enclosing 1 to 3 shiny brown, poisonous nuts. The most common cultivars of this hybrid are Briotii, with red flowers in clusters 10" long, and Fort McNair, which has pinker flowers with a yellow throat. Fort McNair has improved resistance to leaf blotch disease and is narrower than Briotii.

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**sawtooth oak, *Quercus acutissima***

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*Origin: Asia - Eastern China, Korea and Japan*

Deciduous oak 40' to 60' tall with long (up to 7"), chestnut-like leaves with serrated edges. Dark green in summer, these turn yellow in fall and remain on the tree all winter. Upright form when young, then becoming broad and as wide as tall. Yellowish-green male and female catkins appear in spring on the same tree. One-inch long oval acorns follow. Lower branches tend to droop similarly to pin oaks and require removal

near sidewalks and streets. The wood is prone to cracking and splitting, limiting its use to fencing. Sawtooth oaks were widely used in reforestation in the South in the hope that their abundant acorns would increase forage for animals. However, the acorns' bitterness limits their appeal to animals. In eastern states where it was planted in natural areas, sawtooth oak has become invasive, in part due to its faster growth rate than many natives and its ability to produce acorns as early as five years after planting. Sawtooth oak has high drought tolerance and survives in compacted soil. Requires full sun.




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**Shademaster honeylocust, *Gleditsia triacanthos* var. *inermis* 'Shademaster'**

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*North America - a thornless cultivar of the species*

Shademaster is a thornless cultivar with few if any of the long fruiting pods found on predominantly female trees. Upright form to 50' tall and 25' to 35' wide. Reportedly with a better central leader than the cultivars Imperial or Moraine. Honey locust is one of the last trees to leaf out in spring and one of the earliest to lose its leaves in fall, making it less useful for intercepting spring and autumn rains. It's pinnately compound leaves with their small individual leaflets cast a light, dappled shade that allows for growing grass and other plants underneath. Fall color is briefly golden before the leaflets drop. Best grown in full sun. Named for Johann Gottlieb Gleditsch (1714-1786), who was director of the Berlin Botanic Garden.

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**Shawnee brave bald cypress, *Taxodium distichum* 'Mickelson'**

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*Origin: North America - cultivar of a species native from eastern Texas to Florida, reaching north to Delaware and southern Illinois*

Shawnee Brave was selected for its narrower, more upright form - 55' tall by only 20' wide. A deciduous

conifer, its soft green needles turn russet orange in autumn. Small brown cones are about an inch in diameter. Despite being able to survive in waterlogged soils, bald cypress also grow well in drier soils and makes a fine street tree. Because the wood is durable, bald cypress was heavily logged for water tanks, ships, flooring, greenhouses, shingles and laundry equipment. Before the Ice Ages, these trees were widespread across the Northern Hemisphere but died out everywhere except the eastern U.S. Bald cypress seeds are eaten by wild turkeys, wood ducks, evening grosbeaks, squirrels and some waterfowl and wading birds.

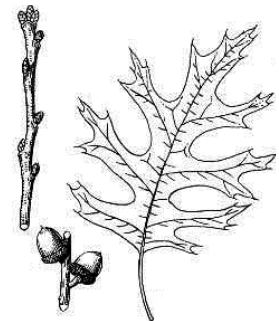
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**Shumard oak, *Quercus shumardii***

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*Origin: North America - the Carolinas west to Texas and north to Kansas, Missouri and Indiana*

A rounded deciduous tree 80' by 60' wide. Upright, rounded form. Deeply lobed leaves are dark green. They are 4 to 8 inches long with 5 to 9 lobes. Noted for its crimson red fall color. Trunks are usually straight. Young trees have smooth gray bark, developing furrows and ridges with age. Acorns are up to an inch long. Only introduced to cultivation in 1907. First scientifically described by American botanist Samuel Botsford Buckley (1809-1884). Buckley botanically explored much of the American Southwest, describing many plants new to science.




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**Sierra oak, Canby oak, *Quercus canbyi***

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*Origin: North America - the Chisos Mountains of Texas in the USA and in Mexico in the states of Nuevo Leon and Tamaulipas*

A member of the red oak group, this species is native only to two states in Mexico and the Chisos Mountains in Texas. The tree matures quickly into a broadly spreading form 30' to 50' tall by 30' to 40' wide. It requires full sun but is tolerant of heat and drought. The shiny leaves are 3 inches long, lanceolate to narrowly elliptical with pointed

apexes. They resemble holly but have gentler spines. New leaves emerge a reddish color, fade to green in the summer, and then turn red again in autumn. They are shed late in the season, so the tree is leafless only briefly. The stalkless acorns are borne singly or in pairs, with 1/4 or 1/3 of the length covered by a shallow cup. The bark is dark gray. The species was first scientifically described only in 1924.

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**silverleaf oak** *Quercus hypoleucoides*

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*Origin: North America – Chihuahua and Sonora in Mexico to Arizona, New Mexico and west Texas in the USA*

This evergreen oak typically grows to 30' but on good soils can reach 50-60'. The tree's lance-shaped leaves are dark gray above and silver underneath. Male flowers are 4-5" long catkins appearing in spring. Female flowers are stemless or short-stalked. Acorns are 1/2 to 2/3 of an inch long. The bottom third is covered in a scaly cup. The smooth bark of young trees becomes deeply furrowed and cracked into black or dark gray plates. The trees have strong central leaders and round, dense foliage. They grow at elevations from 5,000' to 7,000' in northern Mexico's Sonora and Chihuahua states, and across the border in the mountains of New Mexico, Arizona and west Texas. A promising tree for its drought tolerance and rapid growth. Silverleaf oak belongs to the red oak group.

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**silver linden,** *Tilia tomentosa*

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*Origin: southeastern Europe, western Asia*

With sharply contrasting dark green upper leaf surface and a lower leaf surface of silvery white color, this tree is better adapted to the heat and drought than other lindens. The leaves of this deciduous tree are heart shaped with sharply serrated margins. During the growing season, the distinctive white appearance on the underside of the leaf is a useful identification feature as well as

strap-shaped bracts attached to yellow flowers which later become grey nutlets, still with the strap-shaped bracts. The fall leaf color is yellow. The flowers are quite attractive to many species of bees. For unknown reasons some bumble bees have a toxic reaction to the blooms. Mature specimens of this tree exist in many older Portland parks. They can be as tall as 70 feet and 40 feet wide.

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**Sitka spruce,** *Picea sitchensis*

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*Origin: North America - Alaska south to British Columbia, Washington and Oregon*

Native to the wet coast of Oregon north to Alaska, Sitka spruce is seldom found growing more than 50 miles from the ocean.

The State Tree of Alaska, it is the third tallest conifer after coastal redwood and Douglas-fir, with the tallest specimen reaching 315'. The lightweight but strong wood was highly prized for airplanes but also used for ladders, garage doors, folding bleachers and racing shells. It is now extensively cut to make paper pulp. Green, 1" long, typically flat needles are the stiffest and sharpest of any Northwest conifer. Some needles point sideways, others forward. Gray bark flakes off in patches that are purple-brown. Cones are woody and 1" to 4" long covered in thin scales with jagged edges.



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**southern live oak,** *Quercus virginiana*

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*Origin: North America - coastal Virginia south to all of Florida and west through central Texas*

Dark green, unlobed foliage is normally evergreen but may drop in extremely cold winters. Leaves have smooth margins, are leathery, lighter-colored underneath, and tightly tomentose. They range from 1" to 6" in length. Male flowers are greenish catkins 3" long in spring. The small acorns (1/2 inch to 1" long) are shiny, ranging in color from tan-brown to nearly black. They occur singly or in clusters. Bark is thick, with long fissures, and dark in color. This oak





grows 60' tall but can spread up to 80' to cast wide shade, with lower limbs often drooping to the ground. Live oak has strong wood, a deep taproot and an extensive root system, making it exceptionally stable in high winds. Live oak hybridizes freely with other oaks throughout its range, giving rise to variable forms. Trees from Texas are reportedly more drought tolerant. Trees tend to be long-lived, persisting for several centuries.

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**southwestern white pine or border pine,**  
*Pinus strobiformis*

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*Origin: North America - mountains of west Texas, SW Colorado, New Mexico and Arizona, extending south along the mountains to central Mexico; most of its distribution is in Mexico*

This long-lived pine has an open, irregular crown. It can grow slowly to 90' tall with diameters to 3' or more. The bark is thin, rough, and furrowed. Branches are long and horizontal to pendant. Needles are 2.4" to 4" long in bundles of five. The cones are 3" to 10" long with reflexed, thick scales. Seeds are essentially wingless and about half an inch long. Southwestern white pine flowers in June. Cones mature in September, and seeds are dispersed from September to October. The seeds are eaten by small mammals and birds. The wingless seeds are dispersed primarily by the Steller's jay and Clark's nutcracker. Their uneaten caches result in clustered stands. Birds seldom use areas dominated by this pine and it is not generally browsed by game animals or livestock. The wood is soft, not resinous, and white with a slightly darker heartwood. Because of crooked stems and coarse branches it makes poor lumber. Known as *pino enano* or dwarf pine in Spanish.

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**State Street ® Miyabe maple, *Acer miyabei***

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*Origin: Asia - northern Japan on Hokkaido*

This deciduous northern Japanese maple is similar to European hedge maple but has larger (4-6" long and 3-5" wide), 5-lobed leaves that are slightly hairy. They turn yellow in fall. With age the bark becomes rough and corky. Tough, durable trees grow 30' to 60' tall. The species name honors Kingo Miyabe (1860-1951), a Japanese botanist who discovered this tree growing in the wild on Hokkaido in northern Japan.

Tree was subsequently described by Russian botanist Karl Maximowicz in 1888. Introduced to cultivation in the West in 1895 but less commonly planted than other maples with red or orange fall color.

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**swamp white oak, *Quercus bicolor***

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*Origin: North America - from Missouri to New England and southern Ontario in Canada*

Usually a 60-70' tree in open situations, swamp white oak can reach 100' when grown close to other trees. Leaf margins are toothed or wavy. Leaves are usually wider toward the end than at the stem. Scaly bark is distinctive, especially in



young trees. It peels back in ragged curls to reveal green inner bark. Bark on older trees is irregularly grooved with flat ridges. A member of the white oak family. Deer, ducks, geese, and other animals are attracted to this tree's 1" long acorns. Acorns are a light chestnut-brown color and occur in pairs at the end of stems. Most abundant in western New York, Pennsylvania and Ohio but exists in small groves as far west as Missouri and as far south as Kentucky. Wood was used for barrels, flooring, interior finish and mine timbers. It is one of the more important white oaks for lumber production. The swamp white oak has become a popular landscaping tree. Over 400 were planted in the new September 11 Memorial Plaza in Manhattan.

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**valley oak, *Quercus lobata***

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*Origin: North America - California*

The largest oak in California, this deciduous tree can reach 70' with an equal or greater spread. Forms massive trunks with large, arching, limbs to make a picturesque oval or round-topped specimen. Simple leaves are 3-4" long and deep green to gray-green. Yellow-green catkins in



spring are not showy. Produces profuse crops of chestnut-brown acorns that are conical and 1 ¼" to 2 ¼" long. Light grayish-brown bark becomes deeply furrowed with age or breaks into small, square plates. Resents root disturbance and summer irrigation once established, and can live 300 to 400 years. Native to foothills of the Sierra Nevada and the Coast Range, and the northern end of the San Joaquin Valley. Valley oaks have declined due to removal for agriculture, housing and commercial development, and to lowering of the water table due to irrigation withdrawals from the aquifers they rely on for water.

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### **Vanessa Persian ironwood,**

*Parrotia persica* 'Vanessa'

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*Origin: Asia - Iran, Azerbaijan and the Caucasus*

The species is native to Iran's Alborz Mountains, where it forms part of the lush Caspian-Hyrcanian forest, and the Caucasus.

It grows 20' to 45' high and often spreads as wide. Leaves are dark green and veined. Fall color varies from pure yellow to shades of orange, red or purple; multiple colors are often on the same tree. Small red shaving-brush flowers without petals appear in late winter but aren't showy. Slow growing, Persian ironwoods have strong wood; their branches rarely break in storms. With age, patches of bark flake off, giving their trunks a lovely cream and gray mottling. Generally free from pests and diseases. Rare in Portland before the 1990s, it has become widely planted this century due to its drought tolerance, strong wood, lack of messy fruits and good fall color. Vanessa was selected for its less spreading, more upright form. Fall color reputedly more golden and orange but specimens marketed as Vanessa in Portland have exhibited red coloration.




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### **vine maple, *Acer circinatum***

*Origin: North America - Oregon and Washington west of the Cascades, northern California, and British Columbia, Canada*

Native from southern British Columbia into coastal California, vine maple is most frequently seen as a

multi-stemmed shrub in the forest understory beneath taller trees. Its branches will twist and curve to reach sunlight pouring in from any break in the canopy, giving the tree the epithet of "octopus tree" for its often odd shape. If trained as a sapling to have a single trunk, vine maple can attain heights of 15' or more, and usually as wide or wider. More closely related to Japanese maples than other U.S. maples, vine maple has attractive 7 to 9-lobed leaves that are 3" to 4" across. These turn gold to orange or red in fall, but are subject to scorching if grown in full sun. Vine maple is not well adapted to urban settings and should be planted in conditions resembling moist forest. The small flowers are reddish to purple, the samaras have red wings, and the young shoot growth is red, making it easy to find something red on the tree year-round.

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### **western hemlock, *Tsuga heterophylla***

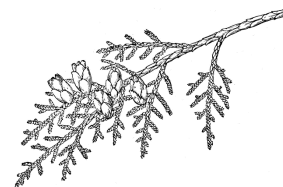
*Origin: North America - Alaska to California*

Narrow, pyramidal conifer growing slowly to 100'. Some trees in Olympic National Park are over 200' tall. Short needles give a soft, fine effect. Branches tend to hang down, giving a weeping appearance. Gray bark. Western hemlock grows from Alaska's Kenai Peninsula through coastal British Columbia, Washington and Oregon to the coastal redwood forests of northern California. It can be found as far east as northwest Montana and northern Idaho in valleys receiving at least 32" of rain a year. It grows from sea level to 5,000'. The tree is similar to mountain hemlock but has smaller cones, less than an inch long versus 1.5" to 3" long for its mountain relative. Western hemlock occurs at lower elevation and does not range as far south in the Cascades as mountain hemlock. Being shade tolerant, western hemlock eventually becomes the dominant tree in undisturbed forests. The wood is used in construction, pilings, poles, gym floors and wood pulp. Washington's state tree since 1947.

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### **western red-cedar, *Thuja plicata***

*Origin: North America - British Columbia, Canada south through Washington, Oregon, northern Idaho and northwest Montana south to northern California; also in the Alaska Panhandle*



Western redcedar can grow up to 200' tall and greater than 10' in diameter. This evergreen has flat, waxy, scale-like leaves that resemble the pattern of ferns. On the underside of the leaves is a white chalk-colored pattern of "X" shaped marks. The branches usually hang down from the trunk in a hook-like fashion. The bark is dark brown, fibrous, and peels off easily in small strips. The cones (about ½" long) form at the tips of the scale-like leaves and open upon maturity. Western redcedar has been used for outbuildings and sheds because the wood is resistant to rot. Native Americans used the wood for canoes and totem poles. The bark can be harvested and was used for blankets, clothing, ropes, nets and even baby diapers. Western redcedar is the official provincial tree of British Columbia.

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**willow oak, *Quercus phellos***

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*Origin: North America - New Jersey south to the panhandle of Florida and west to eastern Texas*

Deciduous oak usually reaching 40 to 50 feet but capable of exceeding 100 feet on good soil. In forests it tends to grow straight with a full, symmetrical crown. Often found on poorly drained bottomlands and along streams, it can tolerate wetter soils than many oaks. Grows faster than many oaks, making it a popular street tree in the eastern U.S., although uncommon in Portland due to its rather disappointing fall color (some leaves turn yellow while others are still green, leading to a subdued display). Leaves are long, thin and unlobed, leading to the tree's common name of willow oak. Bark is usually smooth and gray, although on very old trees it can be nearly black and broken into irregular plates by narrow fissures. A member of the red oak group.

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**Yoshino Japanese cedar,**

*Cryptomeria japonica*  
'Yoshino'

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*Origin: Asia - Japan*

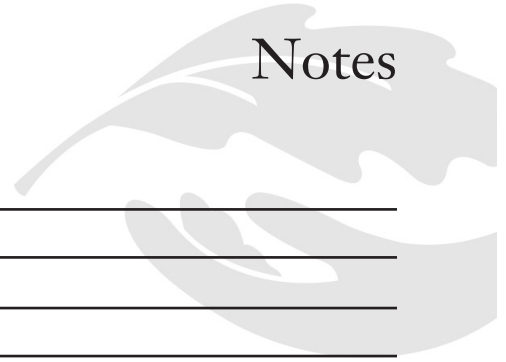
Conical or pyramidal evergreen conifer growing 50-60' tall and 20-30' wide, although old specimens in Japan have exceeded 100'. Introduced around 1928, this

cultivar of Japanese cedar makes a loose pyramid 30' to 40' tall of slightly pendulous branches. Width is 15' to 20'. Densely foliated, with short, light green to blue/green needles. The needles may take on a slight bronze hue in winter but quickly return to green in spring. The trunk remains straight with relatively small-diameter lateral branches. Branches are spaced far enough apart to see the attractively peeling reddish-brown bark. The foliage of this cultivar discolors in winter far less than the species. Pollen cones cluster near the tips of twigs. Single seed cones appear at the tips of twigs and are nearly round but with a slight point. The cones have 20-30 spirally-arranged, wedge-shaped scales. Widely used in Japan for reforestation, to the extent that hay fever spikes during the cryptomeria pollen season in March and April.





# Notes



Lined paper for writing notes, consisting of 20 horizontal lines.

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